

REMARKS

This paper is responsive to a Final Office action dated June 15, 2007. Claims 1-8, 10-19, 23-31, 33-42, 45-51, and 53-55 were examined. The restriction requirement of March 6, 2007 is withdrawn.

Claims Rejections Under 35 U.S.C. § 103

Claims 1-8, 10-19, 23-31, 33-42, 45-51, and 53-55 stand rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 6,847,282 to Gomez et al. (hereinafter, "Gomez") in view of U.S. Patent No. 5,959,522 to Andrews (hereinafter, "Andrews") and U.S. Publication No. 2004/0140862 to Brown et al. (hereinafter, "Brown").

Regarding claim 1, Applicants respectfully maintain that Gomez, alone or in combination with Andrews, Brown, and/or other references of record, fails to teach or suggest that

the electrically conductive plate is formed by a
plurality of continuous conductive patterns, each of
the continuous conductive patterns being substantially
concentric with respect to the aperture,

as required by claim 1. Gomez teaches multiple layer inductor 500, conductive bottom shield pattern 516, and shield pattern 518. Fig. 5; col. 4, line 44-col. 5, line 28. Nowhere does Gomez teach or suggest an electrically conductive plate formed by a plurality of continuous conductive patterns that are substantially concentric with respect to an aperture in the electrically conductive plate, as required by claim 1.

Andrews and Brown fail to compensate for the shortcomings of Gomez. Andrews teaches that "lower shielding layer 142 is patterned with openings 156 running perpendicular to the direction of applied current to interrupt the current paths of the eddy currents." Col. 3, lines 50-53. Andrews teaches further that lower shielding layer 142 includes annular ring 158 and conductive core region 160 centered on an axis of conduction path 140. Col. 3, line 43-col. 4, line 15; Fig. 2. Annular ring 158 and conductive core region 160 of Andrews are not substantially concentric with respect to an aperture, as required by claim 1. Brown teaches

RF/microwave filter elements that include shorting spokes. Figs. 5(a)-(d), 6(a)-(c); paragraphs 0068-0072, 0137-0143. Applicants do not acquiesce in the position that the coaxial filter of Brown teaches an electrically conductive enclosure, as required by claim 1. However, assuming arguendo that the coaxial filter of Brown is an electrically conductive enclosure, the RF/microwave filter elements of Brown fail to teach or suggest conductive patterns that are substantially concentric with respect to an aperture, as required by claim 1. Thus, annular ring 158 and conductive core region 160 of Andrews and the RF/microwave filter elements of Brown fail to teach or suggest an electrically conductive plate formed by a plurality of continuous conductive patterns that are substantially concentric with respect to an aperture in the electrically conductive plate, as required by claim 1.

Since Gomez fails to teach or suggest the recited limitation and no other art of record adds the missing disclosure, Applicants respectfully request that the rejection of claim 1 and all claims dependent thereon, be withdrawn.

Regarding claim 13, Applicants respectfully maintain that Gomez, alone or in combination with Andrews, Brown, and/or other references of record, fails to teach or suggest that

the top plate is formed in a redistribution layer,
as required by claim 13. The Office action relies on col. 3, lines 28-38 of Gomez to supply this teaching. That portion of Gomez teaches that

[e]lectronic products are typically implemented on substrates, such as PCBs, that have one or more layers. Each of these layers includes a non-conductive surface upon which electronic components and traces (also referred to herein as conductive routing) may be disposed. Traces are patterns of conductive material, such as copper, disposed on a non-conductive substrate surface that provide electrical interconnections between electronic components. In addition to providing interconnectivity, traces may provide electromagnetic shielding to electronic components and their interconnections.

Col. 3, lines 28-38. Claim 13 requires that the top plate is formed in a redistribution layer. Applicants respectfully point the Examiner to at least paragraphs 1041-1043 of the specification, which state:

Redistribution layers may be any layers formed on the integrated circuit used to route electrical connections between contact pads on an IC die and a location of a package contact. This may include depositing and patterning metal layers to transform an existing input/output layout into a pattern that satisfies the requirements of a solder bump design.

The redistribution layers are typically formed above a passivation layer, i.e., a layer formed on an integrated circuit to provide electrical stability by protecting the integrated circuit from moisture, contamination particles, and mechanical damage. The passivation layer may include silicon dioxide, silicon nitride, polyimide, or other suitable passivation materials. Redistribution layers are typically formed above integrated circuit bonding pads. These pads, typically coupled to an electronic device formed in the integrated circuit, may include aluminum, copper, titanium, or other suitable material. However, redistribution layers may include additional dielectric and conductive layers formed on an integrated circuit die in the absence of a passivation layer or bonding pads.

Redistribution layers typically have thicknesses substantially greater than the thicknesses of typical dielectric and conductive layers formed on an integrated circuit die. For example, a typical conductive layer in an integrated circuit is less than 1 μ m thick and corresponding dielectric layers are also less than 1 μ m thick. However, conductive layers in an exemplary redistribution layer are at least 2 μ m thick and corresponding dielectric layers are at least 5 μ m thick. In another embodiment, the dielectric layers are at least 15 μ m thick. Redistribution dielectric layers may include silicon nitride, oxynitride, silicon oxide, benzocyclobutene (BCB), polyimide, or other suitable materials. Redistribution conductive layers may include aluminum, copper, or other suitable materials.

Paragraphs 1041-1043 (emphasis added). Applicants respectfully maintain that Gomez, Andrews, and Brown alone or in combination with other references of record, fail to teach or suggest that the top plate is formed in a redistribution layer as required by claim 13. Accordingly, Applicants respectfully request that the rejection of claim 13 and all claims dependent thereon, be withdrawn.

Regarding claim 23, Applicants respectfully maintain that Gomez, alone or in combination with Andrews, Brown, and/or other references of record, fails to teach or suggest that

individual ones of the electrically conductive links are coupled to each other by an electrically

conductive link perpendicular to the individual ones of the electrically conductive links,

as required by claim 23. The Office action admits that Gomez and Andrews fail to teach that limitation of claim 23 and relies on Fig. 6(b) of Brown to supply that teaching. That portion of Brown teaches coaxial filters using multiple sets of spokes. Paragraph 0141-0143. Applicants do not acquiesce in the position that the coaxial filter of Brown teaches an electrically conductive enclosure, as required by claim 23. However, assuming arguendo that the coaxial filter of Brown is an electrically conductive enclosure, the spokes of coaxial filter of Brown fail to teach or suggest electrically conductive links that are coupled to each other by an electrically conductive link perpendicular to the individual ones of the electrically conductive links, as required by claim 23. Applicants respectfully point the Examiner to at least electrically conductive links 1014 and 1012 of Fig. 10 and associated portions of the specification, which describe exemplary embodiments of an electrically conductive link perpendicular to the individual ones of the electrically conductive links that extend across the aperture and are electrically coupled to the electrically conductive enclosure, as required by claim 23. Since Gomez, Andrews, and Brown fail to teach or suggest the recited limitation and no other art of record adds the missing disclosure, Applicants respectfully request that the rejection of claim 23 and all claims dependent thereon, be withdrawn.

Regarding claim 55, Applicants respectfully maintain that the Office fails to establish a prima facie case of obviousness. In particular, Applicants respectfully maintain that Gomez, alone or in combination with Andrews, Brown, and/or other references of record, fails to teach or suggest that

the aperture has an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor,

as required by claim 55. The Office apparently relies on Andrews to supply this teaching. Andrews teaches annular ring 158 apparently having a diameter greater than that of conduction path 140 in a lower shielding layer 142. The Office action implies that because annular ring 158 of Andrews has a diameter greater than that of conductive path 140 of Andrews, it would be

obvious to form an aperture having an approximate diameter determined by adding an approximate outer diameter of the inductor to an approximate inner diameter of the inductor, as required by claim 55. However, the Office fails to provide a reason that the claimed diameter of the aperture is obvious based on the teachings of Andrews. Applicants respectfully point out that

[o]ften, it will be necessary for a court to look to interrelated teachings of multiple patents; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by a person having ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the patent at issue. To facilitate this review, this analysis should be made explicit.

KSR Int'l Co. v. Teleflex Inc., 82 USPQ2d 1385, 1396 (U.S. 2007) (emphasis added).

Applicants respectfully maintain that there is no apparent reason that the claimed diameter of the aperture is obvious based on the teachings of Gomez, Andrews, Brown, and/or other references of record. Since Gomez, Andrews, and Brown fail to teach or suggest the recited limitation and no other art of record adds the missing disclosure, Applicants respectfully request that the rejection of claim 55 and all claims dependent thereon, be withdrawn.

Regarding claim 24, Applicants respectfully maintain that Gomez, alone or in combination with Andrews, Brown, and/or other references of record, fails to teach or suggest that

the electrically conductive plate is formed by a plurality of continuous conductive patterns, each of the continuous conductive patterns being substantially concentric with respect to the aperture,

as required by claim 24. Gomez teaches multiple layer inductor 500, conductive bottom shield pattern 516, and shield pattern 518. Fig. 5; col. 4, line 44-col. 5, line 28. Nowhere does Gomez teach or suggest an electrically conductive plate formed by a plurality of continuous conductive patterns that are substantially concentric with respect to an aperture in the electrically conductive plate, as required by claim 24.

Andrews and Brown fail to compensate for the shortcomings of Gomez. Andrews teaches that "lower shielding layer 142 is patterned with openings 156 running perpendicular to

the direction of applied current to interrupt the current paths of the eddy currents.” Col. 3, lines 50-53. Andrews teaches further that lower shielding layer 142 includes annular ring 158 and conductive core region 160 centered on an axis of conduction path 140. Col. 3, line 43-col. 4, line 15; Fig. 2. Annular ring 158 and conductive core region 160 of Andrews are not substantially concentric with respect to an aperture, as required by claim 24. Brown teaches RF/microwave filter elements that include shorting spokes. Figs. 5(a)-(d), 6(a)-(c); paragraphs 0068-0072, 0137-0143. Applicants do not acquiesce in the position that the coaxial filter of Brown teaches an electrically conductive enclosure, as required by claim 24. However, assuming arguendo that the coaxial filter of Brown is an electrically conductive enclosure, the RF/microwave filter elements of Brown fail to teach or suggest conductive patterns that are substantially concentric with respect to an aperture, as required by claim 24. Thus, annular ring 158 and conductive core region 160 of Andrews and the RF/microwave filter elements of Brown fail to teach or suggest an electrically conductive plate formed by a plurality of continuous conductive patterns that are substantially concentric with respect to an aperture in the electrically conductive plate, as required by claim 24.

Since Gomez fails to teach or suggest the recited limitation and no other art of record adds the missing disclosure, accordingly, Applicants respectfully request that the rejection of claim 24 and all claims dependent thereon, be withdrawn.

Regarding claim 42, Applicants respectfully maintain that Gomez, alone or in combination with Andrews, Brown, and/or other references of record, fails to teach or suggest that

wherein the electrically conductive plate is formed by a plurality of continuous conductive patterns, each of the continuous conductive patterns being substantially concentric with respect to the aperture

as required by claim 42. Gomez teaches multiple layer inductor 500, conductive bottom shield pattern 516, and shield pattern 518. Fig. 5; col. 4, line 44-col. 5, line 28. Nowhere does Gomez teach or suggest an electrically conductive plate formed by a plurality of continuous conductive

patterns that are substantially concentric with respect to an aperture in the electrically conductive plate, as required by claim 42.

Andrews and Brown fail to compensate for the shortcomings of Gomez. Andrews teaches that “lower shielding layer 142 is patterned with openings 156 running perpendicular to the direction of applied current to interrupt the current paths of the eddy currents.” Col. 3, lines 50-53. Andrews teaches further that lower shielding layer 142 includes annular ring 158 and conductive core region 160 centered on an axis of conduction path 140. Col. 3, line 43-col. 4, line 15; Fig. 2. Annular ring 158 and conductive core region 160 of Andrews are not substantially concentric with respect to an aperture, as required by claim 42. Brown teaches RF/microwave filter elements that include shorting spokes. Figs. 5(a)-(d), 6(a)-(c); paragraphs 0068-0072, 0137-0143. Applicants do not acquiesce in the position that the coaxial filter of Brown teaches an electrically conductive enclosure, as required by claim 42. However, assuming arguendo that the coaxial filter of Brown is an electrically conductive enclosure, the RF/microwave filter elements of Brown fail to teach or suggest conductive patterns that are substantially concentric with respect to an aperture, as required by claim 42. Thus, annular ring 158 and conductive core region 160 of Andrews and the RF/microwave filter elements of Brown fail to teach or suggest an electrically conductive plate formed by a plurality of continuous conductive patterns that are substantially concentric with respect to an aperture in the electrically conductive plate, as required by claim 42.

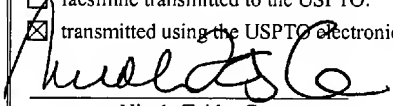
Since Gomez fails to teach or suggest the recited limitation and no other art of record adds the missing disclosure, accordingly, Applicants respectfully request that the rejection of claim 42 and all claims dependent thereon, be withdrawn.

In summary, all claims are believed to be allowable over the art of record, and a Notice of Allowance to that effect is respectfully solicited. Nonetheless, if any issues remain that could be more efficiently handled by telephone, the Examiner is requested to call the undersigned at the number listed below.

CERTIFICATE OF MAILING OR TRANSMISSION

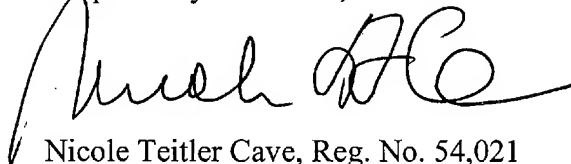
I hereby certify that, on the date shown below, this correspondence is being

- ☐ deposited with the US Postal Service with sufficient postage as first class mail in an envelope addressed as shown above.
- ☐ facsimile transmitted to the USPTO.
- ☒ transmitted using the USPTO electronic filing system.


Nicole Teitler Cave

8/14/07
Date

Respectfully submitted,



Nicole Teitler Cave, Reg. No. 54,021

Attorney for Applicant(s)

(512) 338-6315 (direct)

(512) 338-6300 (main)

(512) 338-6301 (fax)

EXPRESS MAIL LABEL: _____